α-GEO

Matrix Mi

AR+LASER

AR

Laser survey

IMU

IP67

64GB

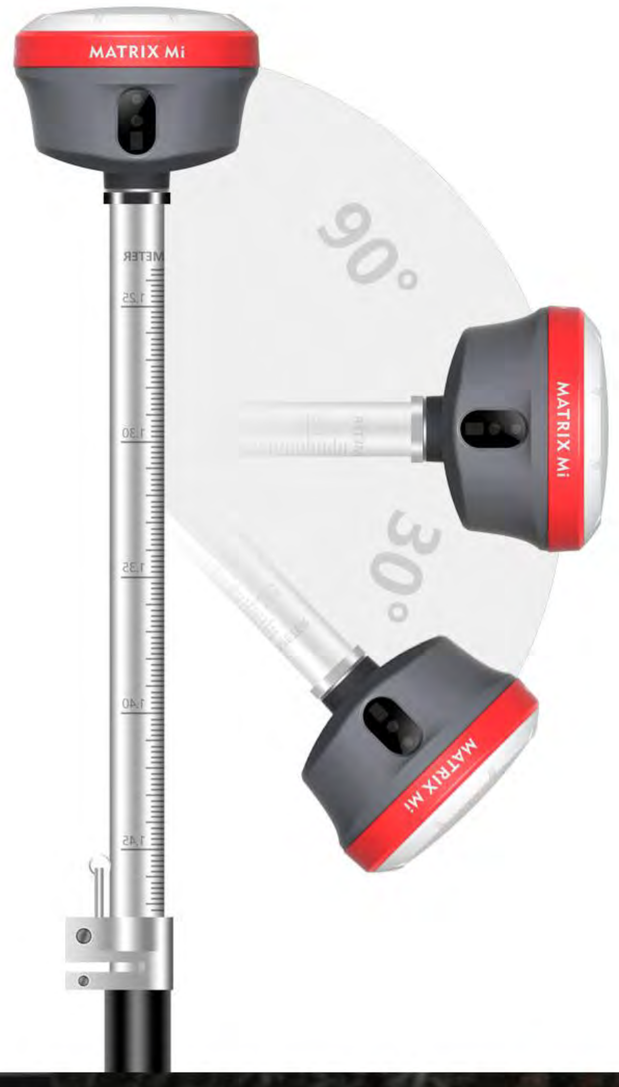
α-GEO

Right to the point with AR real scene stakeout

When the stakeout points are marked directly on the ground, surveyors can easily find the exact location of the stakeout points.
By following the arrows on the real-life map, you can stake out points in one go, without having to move the pole back and forth, making the stakeout work more accurate and efficient.

Laser survey opens a new mode of measurement

The world's exclusive patented laser coordinate measurement quick calibration technology can easily achieve centimeter level measurement accuracy, making measurement more accurate and user-friendly. Besides the camera used in the equipment overcomes the difficulty of aiming under sunlight, making field measurement operations faster and more efficient.



Super IMU say goodbye to repeated initialization

Matrix Mi is equipped with a fast initialization, calibration free and immune to magnetic interference inertial Measurement Unit (IMU). All users can use this technology to collect or stakeout topo points up to 120°.

Multi Constellation

Matrix Mi with its 1408 channels new generation full GNSS chipset ability to support multiple satellite constellation including GPS, GLONASS, BEIDOU, GALILEO, OZSS, SBAS and IRNSS provides precise and accurate spatial data for all users around the world.

Worry-free storage

Built in 64GB memory, which can meet most needs of field work. And the feature of cyclic storage helps receiver to automatically remove the previous observation data while there is not enough space in the memory, with this excellent performance, data storage can last almost 4 years based on 5s sampling interval. And the design of embedded memory chip can ensure the safety of observation data.

Performance specification

Satellite signals tracked simultaneously	GPS: L1C/A, L1C, L2P(Y), L2C, L5
	GLONASS: L1, L2,L3
	BEIDOU: B1I, B2I, B3I, B1C, B2a, B2b
	GALILEO: E1, E5a, E5b,E6
	QZSS: L1, L2, L5, L6
	SBAS: L1, L5
	IRNSS: L5
Channels	1408 tracking Channels
Cold start	<60 s
Hot start	<15 s
Positioning output rate	1Hz - 20Hz
Signal Reacquisition	<1s
RTK Initialization time	<10s
Initialization Reliability	>99.99%
Time accuracy	20 ns

Positioning

Code differential GNSS positioning	Horizontal: 0.25 m + 1 ppm RMS
	Vertical: 0.50 m + 1 ppm RMS
	SBAS differential positioning accuracy[2]: typically <5m 3DRMS
Static GNSS surveying	Horizontal: 2.5 mm + 0.5 ppm RMS
	Vertical: 5 mm + 0.5 ppm RMS
Real Time Kinematic Surveying	
Single Baseline < 30 KM	Horizontal: 8 mm + 1 ppm RMS
	Vertical: 15 mm + 1ppm RMS
Network RTK[3]	Horizontal: 8 mm + 0.5 ppm RMS
	Vertical: 15 mm + 0.5 ppm RMS
Laser survey	±1cm + 5mm/m (Tilt height less than 30 °)

HARDWARE

PHYSYCAL	
Material	Magnesium alloy
Dimensions	102mm*69mm (without bottom connector 20mm)
weight	500g
Operating temperature	-40°C to + 75°C
Storage temperature	-55°C to + 85°C
Protection IP	IP67 dust proof, protected from 30min immersion to depth of 1m
Shock	Survive a 2m pole drop onto concrete
Vibration	MIL-STD-810G
Humidity	100%, condensing

ELECTRYCAL	
Power: 9~24 V DC external power input on 5 pin LEMO port	
Support USB Type-C fast charging	
Internal 5000mAh 7.4V lithium-ion battery	
Battery Life	Rover Mode: 9 hours Base Mode: 5 hours Static Mode: 12 hours

Communication&Data Storrg

I/O interface	
USB Type-C port	Data download / Charging
Sim card slot	Supports Nano-SIM
Antenna port	UHF antenna interface
Radio modem	
Transmit power	1/1.5w switchable
Frequency band	410MHz-470MHz; supports to set the frequency
Protocols	TrimTalk450s, SOUTH, Satel,PCC-EOT
Cellular	
Integrated full frequency multi band 4G modem, supports WCDMA/CDMA2000/TDD-LTE/FDD-LTE	
WIFI	
802.11 b/g standard, access point & client mode, supports access to hotspot for correction transmission	
Bluetooth	
Bluetooth 5.2 Classical/BLE Proprietary double-mode	
Data format	
RTCM2x, RTCM3x, CMR & CMR+, sCMRx	
RINEX, NMEA outputs	
Storage	
64GB internal memory, supports cyclic storage; with ability to collect over one year raw observation based on 5 seconds interval	
Camera	
AR	5M high-definition camera with large viewing angle and support for live scene lofting
Laser assisted	5M high-definition camera, large viewing angle, auxiliary laser measurement and aiming

Others

System integration	
OS system	Intelligent LINUX operating system
Tilt Compensation	IMU up to 120°(Calibration free)
Supported controllers	All android devices with supported software
Design	
button	Power key
Indicator	Power indicator, data link indicator, satellite indicator, Bluetooth indicator
Voice	Intelligent voice prompts
WEBUI	Support WEBUI configuration

1- Precision and reliability may be subject to anomalies due to multipath, obstructions, satellite geometry, and atmospheric conditions. The specifications stated recommend the use of stable mounts in an open sky view, EMI and multipath clean environment, optimal GNSS constellation configurations.
Base lines longer than 30 km require precise ephemeris and occupations up to 24 hours may be required to achieve the high precision static specification.
2- Depends on SBAS system performance
3- Network RTK PPM values are referenced to the closest physical base station and depends on network performances.

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